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Exploring the motives of using Facebook – a multidimensional approach

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Abstract. The increasing popularity of Facebook among university students stimulated the researchers to understand the reasons for joining and using the social networking websites. Several findings of the extant research suggest that the motives of using social networking websites are depending on the virtual community type and users' profile. The objective of this paper is to develop and empirically validate a multidimensional model of the reasons why Romanian university students are using Facebook. The motives of using Facebook have been conceptualized as a global factor with three dimensions: extending the social relations, information & collaboration, and maintaining the social relations. The model has been validated on two samples collected from two Romanian universities.

Keywords: Facebook, social networking websites, motives of using Facebook, SEM, multidimensional model.

1. Introduction

The increasing popularity of Facebook use among university students is raising a research question: which are the reasons for joining and using this social networking website. The number of Facebook users in Romania was eight million in March 2015 (Facebrands.Ro, 2015) of which 24.7% are young people of 18-24 years old. Recent studies on Facebook use show that Romanian university students have large Facebook networks and spend a lot of minutes per day (Balog et al., 2015).

The use of social networking websites has been widely researched and several studies exist that are trying to explain the increasing number of users (Park et al., 2009; Lampe et al., 2012; Madge et al, 2012; Lamanauskas et al., 2013; Hassouneh & Brengman, 2014). However, few studies exist that explore the reasons behind the Facebook use by university students from a multidimensional perspective in order to identify its main facets. The

analysis of recent findings shows a diversity of motives that are depending on the users' profile and the context of use (Dholakia et al., 2004, Park et al., 2009).

The objective of this paper is to explore the motives of using Facebook by Romanian university students from a multidimensional perspective. For this purpose, a multidimensional and hierarchical model has been developed that is featuring three categories of motives: extending the social relations, information & collaboration, and maintaining the social relations. The model has been validated and cross-validated by using two samples collected from two Romanian universities.

This work is part of a larger study that has been started in 2014 in the framework of cooperation between Romanian and Lithuanian researchers. Two qualitative studies have been carried on in Lithuania and Romania in order to better understand why and how university students are using Facebook and which are the educational benefits of social networking websites in a university context. Based on the results of these studies an evaluation instrument has been developed and administrated in a pilot study (Iordache et al., 2015).

The rest of this paper is structured as follows. The next section presents the theoretical grounding and model conceptualization. Section 3 and 4 present the results of the empirical validation of the model and the cross-validation on a different sample. The last section deals with discussion and conclusion.

2. Theoretical grounding and conceptualization

2.1 Related work

The motives of social networking websites use have been studied from different theoretical perspectives by using both qualitative and quantitative approaches. Few approaches exist that explore the reasons for Facebook use by university students from a multidimensional perspective.

Ellison et al. (2007) measured the use of Facebook to connect with prior contacts and to meet new people. They found out that keeping in touch with old friends and maintaining their social relations are strong motivators of Facebook use. Joinson (2008) investigated the nature of various Facebook

uses and gratifications and identified seven factors: social connection, shared identities, photographs, content, social investigation, social surfing, and status update. He found that different goals of using Facebook are reflected in different usage patterns and privacy settings. He also noticed that there are differences by age, gender, and occupational status.

In the study of Park et al. (2009), four primary needs for joining Facebook groups have been identified that vary on gender, hometown, and year in school: socialization, entertainment, self-status seeking, and information.

Grosseck et al. (2011) explored the academic use of Facebook and the extent to which this is related with curricular and co-curricular activities. Their findings show that students are spending a lot of time on Facebook, mainly for social use and less for academic use.

Iordache & Lamanauskas (2013) also investigated the use of social networking websites among university students and concluded that the most important functions are communication, learning and information exchange, photos and video exchange, and friend search. The comparative study of Lamanauskas et al. (2013) investigated the use of social networking websites in five countries: Czech Republic, Lithuania, Romania, Ukraine, and Turkey. Overall, the most important functions are communication, learning & exchanging information.

Mazman and Usluel (2010) investigated the use of Facebook for educational purposes from a multidimensional perspective. Their model includes three multidimensional constructs: Facebook adoption, purposes of using Facebook, and educational usage of Facebook. The purposes of Facebook usage have been specified as a second-order construct featuring three dimensions: social relations, work-related, and daily activities. In their model, social relations refers to making new friends, communicating with friends, and maintaining social relations. The educational usage of Facebook has been specified as a second-order construct that manifests on three dimensions: communication, collaboration, and resource sharing.

Steinfield et al. (2008) highlighted the relationship between the social capital and social relations through a longitudinal study that measures the strength of association between various forms of social capital and measures of psychological well-being. Their study pointed out that Facebook provides support for both forming and maintaining of social relations.

Lampe et al. (2012) analyzed the relationship between the social capital and Facebook users' behavior as information seekers. They found a positive association between the bridging social capital and the perceived value of Facebook as an information source.

Cheung et al. (2014) used the social action theory to explain the use of social networks by students. We-Intention concept has been introduced in the model to highlight the individual commitment in group actions. They conceptualized a model with several factors that influence the We-Intention: social influence factors (subjective norm, group norms, and social identity), social presence and the five key values from the use and gratification paradigm (purposive value, self-discovery, maintaining interpersonal inter-connectivity, social enhancement, and entertainment value).

The results of Cheung et al. (2014) show that social presence has the strongest impact, followed by other three factors having a significant influence: group norms, entertainment value, and maintaining interpersonal inter-connectivity. The rest of five factors had no significant influence on the We-Intention. Their model is inspired from the social influence model of participation in a virtual community that has been conceptualized by Dholakia et al. (2004) that took a marketing lens to explain the participation reasons. The results of both studies are somehow similar in that many factors do not have a significant influence.

Chang et al. (2014) investigated the factors that influence the intention to continue using Facebook and found that informational influence is an indirect factor mediated by the perceived usefulness. This shows that people look for confirmation on Facebook as regards their own perceptions and judgments.

The study of Hassouneh & Brengman (2014) integrated a quantitative and qualitative approach to explore the motivations behind the use of social networking websites. They found out that the main reason for using Second-Life is friendship, followed by escapism, role playing, achievement, seeking relationships, and manipulation.

More recently, two studies explored the motives of Facebook use by university students in Romania (Balog et al., 2015; Manea et al., 2015). Their results show that students use Facebook especially for communication with friends, finding out what happens in the university, and keeping in touch with former high school colleagues. In both studies, the motives of

Facebook use were only analyzed at item (manifest variable) level.

2.2 Conceptualization

As previously mentioned, this work is part of a larger study that has been started in 2014 in a cooperation framework. An evaluation instrument has been developed and then iteratively revised in order to empirically validate the model.

Lamanauskas et al. (2014) carried on a qualitative study based on two focus groups, to explore the use of Facebook by university students. The results show that Facebook is useful for the individual and educational institution's image and formation of the groups of like-minded people. A similar study has been carried on in Romania that is based on structured interviews (Iordache, 2014). The results show that Facebook is useful for keeping in touch with people from home, sharing of teaching and group-related materials, and formation of new groups.

Based on previous results and existing research on the reasons why university students are using Facebook a multidimensional model featuring three dimensions is proposed: extending social relations, information & collaboration, and maintaining social relations.

The operationalization of the three dimensions is presented in Table 1.

Table 1. Constructs and items

Construct	Item	Statement
ESR	ESR1	I use Facebook to find out information about other people
	ESR2	I use Facebook to get in touch with new people
IC	IC1	I use Facebook to find out what happens in my university
	IC2	I use Facebook to get advice about something I am interested in
	IC3	I use Facebook to get access to shared resources
	IC4	I use Facebook to participate in groups of interest for me
MSR	MSR1	I use Facebook to keep in touch with former high school colleagues
	MSR2	I use Facebook to locate old friends
	MSR3	I use Facebook to communicate with my friends

Extending Social Relations (ESR) refers to looking for information about other people and meeting new people. Facebook users can extend their

social relations in a stepwise way by browsing the social network, getting informed about the friends of their friends, taking into consideration the recommendations of their friends, and asking for Facebook friendship (Steinfield et al., 2008; Mazman & Usluel, 2010; Hassouneh & Brengman, 2014).

Information & Collaboration (IC) refer to seeking information about the university life, seeking advice on various issues, getting access to shared resources (e.g. Information sources, documents, photos, videos, etc.), and joining various groups someone is interested in (Park et al., 2009; Lampe et al., 2012; Iordache & Lamanauskas, 2013).

Maintaining Social Relations (MSR) refers to communication with friends and former classmates as well to seeking to locate old friends in order to resume communication with them (Steinfield et al., 2008; Mazman & Usluel, 2010; Grosseck et al., 2011; Cheung et al., 2014; Balog et al., 2015).

The conceptualization of the motives of Facebook use as a second order construct enables measuring how it manifests in each dimension. If the empirical validation proves that these dimensions are distinct, then the model will have important consequences for other models that include the motives of Facebook use.

3. Empirical validation

3.1 The methodological approach

The first version of the evaluation instrument has been administrated to university students in March 2015. Students were asked to answer general questions (age, gender, faculty, program and year of study), questions regarding Facebook use (network size, frequency, and duration of use), and then to evaluate the items on a 7-points Likert scale.

An exploratory factor analysis has been carried on that suggested a three-factor solution. However, the results were unacceptable as regards the item reliability and factor loadings. Therefore, the scale has been revised and administrated again in May-June 2015.

The exploratory factor analysis (extraction method: maximum likelihood, rotation method: Promax) resulted in a three-factor solution that served as a

basis for the conceptual model and its operationalization. Eigenvalues were all over 1 and the three factors explained 62.84 of the variance. The first factor explained 39.93%, the second 11.90% and the third 11.01% of the variance. The Bartlett's Test of Sphericity and KMO (Kaiser-Meyer-Olkin) measure indicated the sample appropriateness for EFA (Chi-square = 700.575, df=45, Sig. = 0.000, KMO = 0.818). One item has been deleted, because it didn't load on any factor, so the final scale has 9 items as shown in Table 1.

The next steps were to carry on a confirmatory factor analysis (CFA) and then a cross-validation of the multidimensional model on a second sample. The confirmatory factor analysis using Structural Equation Modeling (SEM) approach was carried on by using Amos for Windows (Arbuckle, 2006). This study is using the following indices to assess the fit of the model with the data: Tucker-Lewis Index (TLI), Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR).

Data was examined for the presence of univariate and multivariate outliers through standardized scores ($|z| \geq 3.30$), respectively Mahalanobis distance ($p<.001$). The normality was investigated in terms of skewness and kurtosis.

Two models have been specified and tested for each sample: a three first-order inter-correlated factors and a second order factor (structural model). The estimation results have been analyzed and compared according to the recommendations in the literature as regards the testing of measurement, structure, and multidimensional models (Anderson & Gerbing, 1998; Edwards, 2001; Koufteros et al., 2009, Bagozzi & Yi, 2012).

Since there are only three first-order factors, the models have the same number of parameters and, therefore, are equivalent. As such, the two models have identical goodness-of-fit indices (Rindskopf and Rose, 1998).

Convergent validity has been assessed against the minimum values recommended (Fornell and Larcker, 1981; Hair et al., 2010) for loadings magnitude (greater than 0.5, ideally exceed 0.7), construct reliability (composite reliability, CR greater than 0.70), and average variance extracted (AVE, greater than 0.5). Discriminant validity is less important for multidimensional models since the dimensions are expected to be highly correlated (Koufteros et al., 2009).

3.2 Sample and data analysis

The first sample includes 227 university students (129 men and 98 women) from the Building Engineering University of Bucharest. After checking the univariate and multivariate outliers, two observations were eliminated so the working sample has 225 observations.

The age of participants is varying between 18 and 39 years with a mean of 20.95 (SD=2.36). All students except for two are undergraduates. The network size has a mean value of 856.93 (SD=866.18. From the total number of FB friends 416.36 (48.60%) are students and 98.81 (11.53%) are studying in this university. The mean number of the logs / day is 3.05 (SD=0. 82) and the time spent in minutes / day is on average 79.73 (SD=106.09).

As it could be noticed, university students have large Facebook networks and spend a lot of time on Facebook.

3.3 Results

The first-order model has been analyzed for dimensionality, the internal consistency of the scale (Cronbach's alpha), and convergent validity. The descriptive statistics and item loadings are presented in Table 2.

Table 2. Descriptive statistics and item loadings (N=225)

First-order factors	Item	M	SD	Loading (λ)	R^2
Extending Social Relations (ESR)	ESR1	4.33	1.63	0.62	0.38
	ESR2	3.89	1.85	0.84	0.71
Information and Collaboration (IC)	IC1	4.56	1.70	0.54	0.30
	IC2	4.34	1.79	0.75	0.57
	IC3	4.33	1.69	0.73	0.54
	IC4	4.44	1.80	0.60	0.36
Maintaining Social Relations (MSR)	MSR1	4.99	1.70	0.74	0.55
	MSR2	4.71	1.81	0.86	0.73
	MSR3	5.79	1.67	0.53	0.28

All mean values are over 4.00 (neutral) except for ESR2. The highest rated items are those related to maintaining social relations. All item loadings are over the threshold of 0.5.

A closer look at item loadings shows that two items having the highest

scores in each dimension, namely IC1 and MSR3, have the lowest item loadings. This suggests that further operationalization may consider the university-related information and communication with friends as potential distinct dimensions.

The second-order model was evaluated in order to assess the relationship between the second-order factor and its dimensions (first-order factors). The results are presented in Table 3.

Table 3. Convergent validity (N=225)

Dimensions	M	SD	α	CR	AVE	Loading (γ)	R^2
ESR	4.11	1.52	0.680	0.701	0.545	0.761	0.58
IC	4.42	1.32	0.746	0.755	0.440	0.717	0.51
MSR	5.16	1.33	0.741	0.758	0.520	0.753	0.57

As it could be observed, the convergent validity of each dimension is good: CR is over 0.7, AVE is over 0.5 except for one dimension. The internal consistency of each scale is over 0.6. The factor loadings for the second-order model are all above the threshold of 0.7.

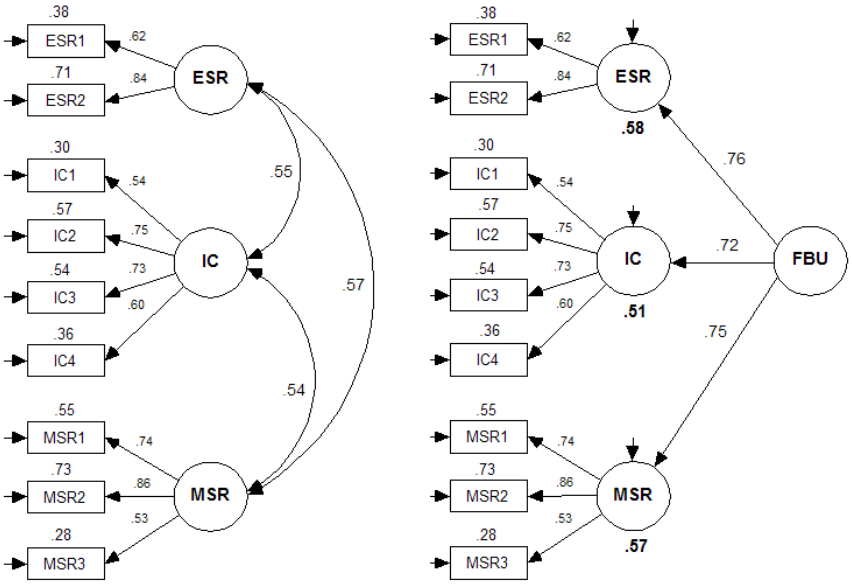

Figure 1. Estimation results (N=225) a) First-order model b) Second-order model

The structural model explains 58% variance in ESR, 57% variance in MSR, and 51% variance in IC. The convergent validity of the second-order construct is very good (CR=0. 788, AVE=0. 553).

The global factor manifests in a balanced way in all three dimensions. The estimation results of the two models are presented in Figure 1a and 1b. The mean values for the latent variables are over 4.00 (neutral). The highest rated dimension is MSR followed by IC which means that students are firstly using Facebook for maintaining the existing social relations and secondly for information and collaboration. The mean value of the second-order construct is 4.60 (SD=1. 10).

The results indicated a good level of fit of the proposed model with the data: χ^2=54.451, DF=24, p=0.001, χ^2/DF=2.185, TLI=0.926, CFI=0.951, SRMR = 0.058, RMSEA=0.078.

4. Cross-validation on a different sample

4.1 Sample and data analysis

The second sample includes 204 university students (114 men and 90 women) from the Valahia University of Targoviste. The age of participants is varying between 19 and 52 years with a mean of 25.89 (SD=7.68). Most of the students are undergraduates (71.1%).

The network size has a mean value of 641.13 (SD=801.94. From the mean number of FB friends 219.67 (48.60%) are students and 74.90 (11.53%) are studying in this university. The mean number of the logs / day is 2.73 (SD=0. 94) and the time spent in minutes / day is on average 71.24 (SD=80.86).

4.2 Results

The first-order model has been analyzed for dimensionality, the internal consistency of the measurement scale (Cronbach's alpha), and convergent validity. The descriptive statistics and item loadings for each dimension are presented in Table 4.

All mean values are over 4.00 (neutral). The highest rated items are those related to maintaining social relations. All item loadings except for one are

over the threshold of 0.5. The remarks regarding the item loadings of IC1 and MSR3 are confirmed for the second sample.

Table 4. Descriptive statistics and item loadings (N=204)

First-order factors	Item	M	SD	Loading (λ)	R^2
Extending Social Relations (ESR)	ESR1	4.32	1.82	0.76	0.57
	ESR2	4.52	1.89	0.79	0.62
Information and Collaboration (IC)	IC1	4.19	1.87	0.46	0.21
	IC2	4.41	1.70	0.62	0.39
	IC3	4.48	1.68	0.84	0.71
	IC4	4.46	1.86	0.70	0.49
Maintaining Social Relations (MSR)	MSR1	5,31	1.62	0.81	0.66
	MSR2	5.30	1.66	0.89	0.79
	MSR3	5.83	1.47	0.56	0.31

The estimation results of the two models are presented in Figure 2a and 2b.

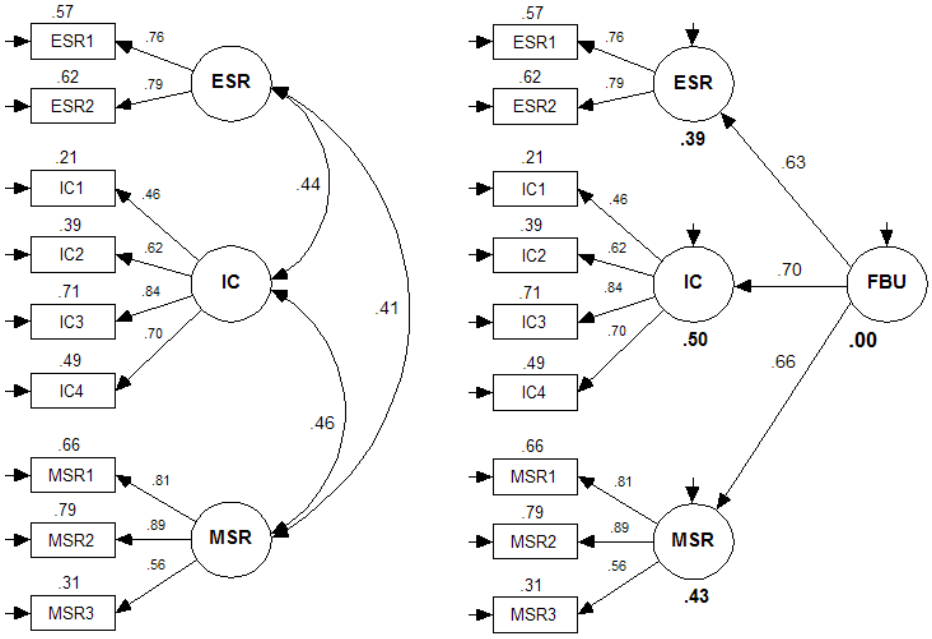

Figure 2. Estimation results (N=204) a) First-order model b) Second-order model

The second-order model was evaluated in order to assess the relationship between the second-order factor and its dimensions (first-order factors). The results are presented in Table 5.

Table 5. Convergent validity (N=204)

Dimensions	M	SD	α	CR	AVE	Loading (γ)	R2
SRE	4.42	1.66	0.746	0.747	0.596	0.63	0.39
IC	4.39	1.33	0.735	0.757	0.448	0.70	0.50
MSR	5.48	1.33	0.789	0.803	0.584	0.66	0.43

As it could be observed, the convergent validity is acceptable: CR is over 0.7, AVE is over 0.5 except for one dimension. The internal consistency of each scale is over 0.7. The factor loadings for the second-order model are above 0.6. The structural model explains 39% variance in ESR, 43% variance in MSR, and 50% variance in IC. The convergent validity of the second-order construct is acceptable (α = 0.699, CR=0.702, AVE=0.440).

The mean values of the latent variables are over 4.00 (neutral). The highest rated dimension is MSR which means that students are firstly using Facebook for maintaining the existing social relations. The mean value for the second order construct is 4.76 (SD=1.08).

The results indicated an acceptable level of fit of the proposed model with the data: χ^2=63.085, DF=24, p=0.000, χ^2/DF=2.629, TLI=0.901, CFI=0.934, SRMR = 0.062, RMSEA=0.090.

5. Discussion and conclusion

The contribution of this study is a theoretically grounded and empirically validated multidimensional model measuring the motives why university students are using Facebook. These motives have been conceptualized as a second order factor that manifests on three dimensions: extending the social relations, information & collaboration, and maintaining the social relations.

The results show that university students mainly use Facebook to maintain social relations, information, and collaboration. Two dimensions out of three are related to socialization which confirms the results of other studies regarding the Facebook use (Grosseck et al., 2011; Madge et al., 2012). In both samples, maintaining the social relations is the highest rated

dimension. The analysis of estimation results suggests that future work may consider the refinement and extension of the model so as to include other dimensions. In this respect, the information finding and collaboration could be considered as two distinct dimensions.

The results of this work have several implications for researchers and practitioners. First, it contributes to a better understanding of the reasons why Romanian university students are using Facebook. Up to now, there is no quantitative study that is addressing this issue from a multidimensional perspective.

Second, a multidimensional model enables analysis on two levels (global factor and each dimension) as well as group comparisons and cross-cultural studies. Further work will explore gender and faculty profile differences as well as cross-national comparisons between Romanian and Lithuanian university students.

Third, although this work is mainly exploratory, the model has been empirically validated on two different samples so it could serve as a starting point for further developments of the scale. The results show that in both cases, students are perceiving the same factorial structure, i.e. the three dimensions of the global factor.

The fourth, after demonstrating the one-dimensional nature of each dimension is possible, averaging the items in each dimension and using the resulted scores as items in a first-order construct (Bagozzi and Edwards, 1998). The resulted construct is more parsimonious and could be further used in other models relating several latent variables.

There are inherent limitations of the study. First, the study is exploratory since the dimensions were identified starting with a limited pool of items via exploratory factor analysis. As such, there are only three dimensions from which one has only two items.

Second, the model conceptualization approach is limited to the research framework and objectives, i.e. Facebook usage related to the university context. As such, it does not include entertainment related reasons.

Third, the two samples are relatively small. To achieve a deeper understanding of the reasons why university students are using Facebook, larger samples are needed. Next studies will collect samples for several universities and focus on the analysis of the variation of the reasons to use Facebook on faculty profile and gender.

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